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The Development of the Questionnaire for Investigation of Ecological Consciousness of Townspeople in Russia

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Abstract

The article describes the development of diagnostic methods of investigation of environmental consciousness, which would allow identifying those concepts and structure of human consciousness, which are responsible for its environmental behavior in different situations that have immediate or long-term environmental impacts and therefore require the environmental responsibility of individual actions and deeds. Methods include 4 scales: "Environmental Threats", "Unity with Nature", "Conflict of Environments" and "Ecological Responsibility".

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1. Introduction

Urgency of the problem of formation of environmental culture and development of ecological consciousness as its psychological basis is not reduced in recent decades, despite the adoption of the UN Conference on Environment and Sustainable Development in Rio de Janeiro Concept of sustainable development [3], and the development and adoption of the Environment Doctrine of the Russian Federation. Nearly half a century of experience in ecological education has shown the lack of efficiency. This is evidenced by the fact that during these fifty years almost none of the global environmental problems have solved, while the number of natural and man-made environmental disasters has increased steadily.

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To date, there is a certain experience of psychological diagnosis of ecological consciousness in solving various research and practical tasks, according to which different authors identify as the subject of diagnosing different characteristics of ecological consciousness [1], [2], [5]-[9], [11], and others]. Such diversity is due to differences in definitions of ecological consciousness as a subject of study and a variety of research purposes and tasks undertaken by each of the authors. Therefore, the problem of diagnosing ecological consciousness remains relevant despite of the significant contribution to its development over the past two decades.

The purpose of this study was to develop a procedure for the diagnosis of ecological consciousness, which would allow identifying those concepts and structure of human consciousness, which are responsible for its ecological behavior in situations that have immediate or long-term environmental impacts and therefore requiring human activities and ecological responsibility actions. The study of the relationship between ecological consciousness and ecological behavior of children and adults in the home and in the labor market requires both theoretical formulation of the problem of development and experimental and methodological support of the solution. And ecological consciousness acted as a motivational factor for ecological behavior, to reveal those cognitive, emotional and behavioral motives that consciously or unconsciously guided by the making a decision in an environmentally problematic situation.

1.1. The theoretical background of ecological consciousness measurement

Creating a full diagnostic tool of ecological consciousness encounters a number of problems. The first of them is a lack of sufficient and methodically developed concept of ecological consciousness. The most popular is the theory of ecological consciousness developed by Yasvin and Deryabo, which is built on an assessment of the subjective nature of man's relationship to the objects [1], [11]. Moreover, all researchers agree that the ecological consciousness of man is much broader in content and must include other components, and not only in relation to the natural, but also the built environment. The dispersion of theoretical and methodological positions in the understanding of the phenomenon of environmental consciousness leads to the fact that each researcher interprets it according to their research interests and in the corresponding theory [1], [2], [5]-[9], [11].

The second problem is that, despite the differences in the definition of ecological consciousness, they are not built on "psychological" and the "ecological" knowledge of how to be ecologically conscious, i.e. what is "ecologically good" and what is "ecologically bad." The exception is the theory developed by Yasvin and Deryabo [1], [11], built on the psychology of the subjective attitude, but at the same time, limiting the analysis of ecological consciousness only as subjective attitude to natural features.

The third problem concerns the objective difficulty of diagnosis of individual consciousness. Although cognitive psychology developed quite a lot of experimental methods, they tend to require a lot of time for data collection and processing.

Realizing these difficulties, we tried to make the most of the known methods for diagnosis of consciousness in development and testing methodologies to ensure that it was easy to use.

The present study was based on the following theoretical assumptions. Ecological consciousness is a complex mental formation, which includes cognitive, regulatory, emotional, ethical and other aspects. These aspects are studied by different researchers in combination or separately, depending on the specific research objectives and the theoretical position of the researcher. Formation of ecological consciousness is such a change of mentality of the individual, where the processes of perception, feelings and behavior are functionally combined in mental states that are transformed into structural components of consciousness. [9] Therefore, any technique that claims to a relevant assessment of the level of environmental ecological consciousness includes the following three components:

cognitive - to diagnose complex representations of themselves in the context of the relationship with the surrounding natural and built environment and represent its natural and technical objects;

affective - to diagnose emotional and evaluative attitude to natural and man-made objects in the environment;

behavioral - for diagnosis of motivation and practice areas to the surrounding natural and built environment.

According ecopsychological approach psyche acts as the object of research in three forms: as a psychic has become a reality, as the objectified, materialized psychic reality and becoming a psychic reality. Because consciousness are the highest form of mental development, the ecological consciousness and as the subject of the study should be considered in its three forms of existence, according to the characteristics of each of them and developed a questionnaire environmental consciousness. This means that the development of diagnostic techniques of environmental consciousness, we need to cover all of its components in three forms of its existence:

- in the form of already existing in the mind of the individual ideas of the threats that are people of different natural hazards and disasters, as well as threats to human nature;
- in the form of becoming psychic reality, which manifests itself in a situation of making environmentally controversial decision;
- in the form of psychic reality as information and legal products that represent certain ways of solving environmental problems: scientific articles, books, environmental information in the media, environmental laws, etc.

Based on the above, as criteria for the selection of test cases, we selected the following ideas in mind:

- perceived environmental threats
- feeling of oneness with nature,
- conflict situations, requiring a choice between different types of environment (natural, technological and social)
- environmental responsibility.

On this basis, we have developed four scales: "Environmental Threats", "Unity with Nature", "Conflict of Environments" and "Ecological Responsibility". In the first phase of the study, these scales have been developed for diagnosis of cognitive, affective and behavioral components of ecological consciousness in adults*, and in the second stage - for the diagnosis of ecological consciousness in children.

1.2 Scale "Environmental Threats"

In order to identify relevant environmental threats, we chose ecopsychological approach to the development of the human psyche [7]-[9], which is a prerequisite for investigation the relationship "Man–Environment". Applied to man as a subject of ecological consciousness, this ratio is specified in spherical hierarchy relations: "I - my house," "I - my neighborhood," "I - my city," "I - my country", "I - my planet" each of which is an appropriate level of ecological consciousness of the individual.

According to these levels we have formulated 24 statements containing one or other pressing environmental problems. During the pilot study the factor structure was identified (6 main factors that exhaust 78% of the variance), and the importance of a factor for the respondents. [9]

In order to assess a complex interaction of man and nature, estimates were calculated for each scale, and then the assessments of the strength and frequency were multiplied by each other. Thus, four values were obtained in the two-dimensional model of the interaction between man and nature.

N+ - positive effects of nature on man

N-- negative effects of nature on man

H+ - positive impact on nature

H-- a negative impact on nature

1.3 Scale "Unity with nature"

Initial methodological basis for the modern science of nature and man is gnoseological paradigm, according to which the subject (person) and object (nature) are initially in a logical opposition to each other: "subject - object", "consciousness - being", "man – nature" etc. Within this paradigm, one can either act on the environment as the subject, or as a quasi-object, on which the environment acting as a quasi-subject. This understanding of human interaction with nature underlies the anthropocentric position that man - is the highest link in the development of nature. Nature exists ostensibly to ensure the existence (if not prosperity, the survival) of man. According to this worldview nature is seen only as the human environment, which allows and even requires, on the one hand, the consuming attitude to nature, but on the other - protective and conserving attitude to it. [7] But environmental awareness is seen as an attribute of man, reflecting the natural environment or human impacts on the environment. So the diagnosis of environmental consciousness in the epistemological paradigm is constructed as a diagnosis on how well people on environmental criteria reflects the natural world in their minds (including subjective relation to it), and how environmentally correct is his behavior in relation to the natural world. It is easy to see that the original reasons for the development of diagnostic ecological consciousness in this approach serves the researcher's own knowledge of what is "ecologically good" and what is "ecologically bad." This means the diagnosis of exposed surface, phenomenal aspect of consciousness. While the procedural aspect of environmental consciousness, generating motivation selection of a response to an environmental issue, or the subjective attitude to natural objects, finally, of a mode of behavior in relation to nature, it remains out of focus of so constructed diagnosis.

The task of psychological research "not limited to the study of phenomena and processes on the surface of consciousness, to penetrate into its internal structure. But this consciousness must not be regarded as contemplated the subject field in which it projected images and concepts, as well as a special internal motion generated by the movement of human activities "[4, p. 13].

In order to determine the place in the mind of the individual is his idea of its unity with nature (the feeling of "oneness with nature"), an expert survey was conducted with the participation of 25 people (7 men, 18 women, aged from 18 to 61 years). Each expert was asked to name the emotional moments (can be more than one), when they feel part of nature. The result was a list of 67 names, including natural phenomena, physiological states, actions, and feelings. The list was subjected to primary content analysis as similar in meaning statements were classified in the same group. Was then conducted frequency analysis. The final list included 20 statements that were mentioned by at least 25% of the experts. The first of the factors included in this list has been associated with stereotypes about the aesthetic impact of nature on man, which is why it is called "aesthetic experience." The second factor combined direct muscle and taste and is known as "physical sensation." The third factor combined description of Activism in the environment and has been called "active". Three factors have combined for only 15 statements from the original list, and the rest were not included in the factor structure.

Thus, the scale "Unity with Nature" was the final form of the 15 statements, which form three factors. Statistical testing showed a high degree of consistency statements in the questionnaire ($\alpha = 0,839$).

1.4 Scale "Conflict of Environments"

Environment appears in the mind as a vital habitat, which includes three components: natural, technological and social. In some situations, these parts of the environment are reflected in the mind as opposed to each other, conflicting. It is these conflicts actualize the process-generating side of environmental consciousness.

The most familiar and comprehensive coverage to date presented in the mass consciousness is the juxtaposition of the natural and man-made environments. It is man-made environment acts as a primary way of human intervention in the existing biogeocenoses. This negative interference leads to irreversible ecological sense in environmental degradation and the depletion of natural resources. In particular, the building of cities, dams, and transportation systems (canals, tunnels, paved road ways, etc.), the development of a wide variety of

minerals reached such proportions as their negative impact on the global ecosystem led to talk of a global environmental catastrophe. Pathos of "transformation of nature" was replaced growing alarm and pessimistic forecasts of the future of our technocratic civilization.

Thus, aiming to develop the scale, diagnosing the subjective preferences of an environmental component in a situation of conflict, situations of internal conflict in the mind have been selected. Each situation has been described as the problem, suggesting different solutions. Moreover, each pair of conflicting environmental components was presented twice, in two different tasks: one where environmental component is the object of the activity, and the second – as a condition, and vice versa.

Example 1: At a small company has developed a friendly cohesive team. As the company took its technical reequipment and old employees do not hold down a job at the new modern equipment. What would you advise the director of the plant?

- A. Hire more professional staff
- B. Dismiss those, who can not be retrained
- C. Leave old employees willing to undergo retraining
- D. Leave all the old employees unconditionally

1.5 Scale "Ecological Responsibility"

As a material for the development of a diagnostic tool of ecological responsibility measurement has served the "Law of the Russian Federation for the Protection of the Environment".

Building on the articles of the law basic areas of environmental activities were selected. According to the selected areas environmental measures two levels were identified: those that can be implemented at the individual level, and those that can be implemented at the level of government agencies or public organizations. Analysis of the information posted on the websites of environmental NGOs and environmental forums in the Internet, allowed to formulate concrete measures to protect the environment in a rather radical form. The list of these measures has passed preliminary testing.

In order to determine the relevance of ecological issues, the subject is asked a timeline of the events discussed in the statement: "immediate", "in the near future", "future", "never". In addition, in each case was an option for "no answer", the choice of which, in our view must show ignorance of this environmental problem.

1.6 Validation of diagnostic techniques of environmental consciousness

Validation and standardization of the questionnaire was carried out on 1,134 urban residents of Moscow, the Volga region and Siberia, between the ages of 14 to 63 years, of both sexes, with different levels of education. Standardization of the sample was stratified with respect to parameters such as age, sex, social status.

In this case, we obtained the following results:

1. First place in the hierarchy of environmental threats is occupied by the position of "the struggle with nature", corresponding to the type of anthropocentric environmental consciousness. The last - the fourth place in the hierarchy is the position of "taking care of nature," ecocentric corresponding type of consciousness (according to the Yasvin-Deryabo theory [1]).

2. Empirical data obtained from different age groups, have established the following hierarchical relation to the position of "taking care of nature," "harmony with nature", "struggle with nature", "fear of Nature":

a) the highest position of "taking care of nature" (ecocentric type of ecological consciousness), is detected in the age group over 55 years, the lowest figure for this position demonstrate the respondents aged 36 to 45 years (21.60%);

b) The second place is occupied by the data on the position of the "struggle against nature" (anthropocentric type of ecological consciousness) among the respondents aged under 18 years (64%) and the lowest value of this index characteristic of respondents aged over 55 years (14.30 %);

c) The one third of the respondents of all ages with indicators for the position of "harmony with nature" (nature-centered type of ecological consciousness), showed the range (25.00% - 25.50%) in three age groups: 26 to 35 years, from 36 to 45 years and from 46 to 55 years. The lowest value of this index shows a group of more than 55 years old (0.00%).

d) The lowest figures we received for the position "the fear of nature" (an archaic type of ecological consciousness.) Moreover, the largest of its value is found among respondents aged 26 to 35 years (20.90%), and the lowest - in the age group of 18 years (6.30%). However, other age groups do not differ from each other: 11.80%, 9.80%, 12.50% and 14.30%.

3. A statistically significant difference in the perception of the interaction of man and nature was detected in respondents from different social status: students, professionals with higher education (non-ecological) and ecological professionals.

4. It was found that in a situation of environmental conflict environmentalists more than others prefer the natural environment and the least - techno. Interestingly, women in conflict situations often prefer social environment, while men - techno and this is consistent with the traditional understanding of gender features.

The studies let us believe that we have developed a test of environment adequate motivation and prognostically valuable tool for studying the structure and dynamics of ecological consciousness.

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